



Marine Litter and the Role of the Packaging Industry



March 2014

INTRODUCTION

The PAC NEXT Leadership Council agreed on December 4, 2013 to inform stakeholders in the packaging value chain about the issues and challenges related to marine debris and its relationship with packaging and litter. The purpose of this executive summary is to create awareness of marine litter and the general issues associated with public and accidental littering, pollution in ocean gyres and Great Lakes, and efforts to reduce packaging waste from industrial operations, e.g. Operation Clean Sweep®.

WHAT IS MARINE LITTER?

Marine debris is defined as any “persistent solid material that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine environment or the Great Lakes.”¹

Packaging and plastics are integrated into daily human activity and can enter into the marine environments directly or indirectly and in numerous ways through improper and ineffective waste management, intentional or accidental dumping and littering at sea or on shorelines, or carried by storm water runoff.

Marine litter adversely affects marine ecosystems. It has environmental, health and safety impacts on marine wildlife and coral systems. Marine litter also threatens marine-industries such as fishing and aquaculture.

HOW DOES PACKAGING PLAY A ROLE IN THIS ISSUE?

Studies reveal that a significant amount of marine debris is comprised of plastic. Plastic marine debris is frequently from packaging litter as shown in the Ocean Conservancy data table below that lists several packaging types found over a 25-year span.

Top 10 Debris Items

RANK	DEBRIS ITEM	NUMBER OF DEBRIS ITEMS	PERCENTAGE OF TOTAL DEBRIS ITEMS
1	Cigarettes/Cigarette Filters	52,907,756	32%
2	Food Wrappers/Containers	14,766,533	9%
3	Caps, Lids	13,585,425	8%
4	Cups/Plates/Utensils	10,112,038	6%
5	Beverage Bottles (Plastic)	9,549,156	6%
6	Bags (Plastic)	7,825,319	5%
7	Beverage Bottles (Glass)	7,062,199	4%
8	Beverage Cans	6,753,260	4%
9	Straws/Stirrers	6,263,453	4%
10	Rope	3,251,948	2%
Top 10 Total Debris Items		132,077,087	80%

Source: http://act.oceanconservancy.org/pdf/Marine_Debris_2011_Report_OC.pdf

¹ U.S. Environmental Protection Agency, “Report to Congress: Impacts and Control of Combined Sewer Overflows and Sanitary Sewer Overflows” August 26, 2004, (EPA Publication 833-R-04-001), http://cfpub.epa.gov/npdes/cso/cpolicy_report2004.cfm

From the collected data, much of plastic marine debris is micro in size. There are four main size categories used to classify marine debris: mega-debris (>100 mm diameter); macro-debris (20-100 mm diameter); meso-debris (5-20 mm diameter); and micro-debris (0.3-5 mm diameter). Plastic micro-debris can be subcategorized into primary and secondary micro-plastics. Primary micro-plastics are intentionally made to be that size, such as ‘scrubbing beads’ in personal care products. Secondary micro-plastics are the result of the fragmentation of larger plastic products, such as packaging, into smaller pieces, as shown in the photo below.



Photo: R. Morier

Industrial facilities can contribute to the marine debris problem when waste items generated by industrial processes, including industrial scraps and packaging material, are improperly disposed or finished products are lost during transportation. Another common type of marine debris generated from industrial facilities is plastic resin pellets. Plastic resin pellets, or pre-production plastic pellets, which are small spherical particles, are the raw material form of most plastic resins. Plastic resin pellets are normally contained from their creation through processing into a plastic product, but they may be inadvertently released into the marine environment.

WHAT ARE THE INDUSTRY-LED SOLUTIONS?

Industry is taking initiative in addressing the problem with marine litter from plastic pellets through the Operation Clean Sweep® (OCS) program. OCS provides guidelines to help operations managers in the plastic industry reduce accidental loss of pellets from processing facilities into the environment. There continues to be global involvement of companies that have implemented practices for zero pellet loss with the OCS program. The OCS manual and a list of partners that have taken the OCS pledge can be found here: <http://www.opcleansweep.org/>

Operation Clean Sweep® is one of more than 140 projects planned, underway or completed since the Declaration of the Global Plastics Associations for Solutions on Marine Litter was established in March 2011. The projects vary widely, ranging from beach clean ups, global research, expansion of plastics recycling to education campaigns.

The Declaration is a result of the Honolulu Strategy where committed stakeholders gathered at the International Marine Debris Conference hosted by NOAA and UNEP to establish a global, results-oriented framework of action with the overarching goal to reduce impacts of marine debris over the next 10 years. Global leaders from plastics organizations signed the Declaration to combat marine litter through prevention and management. It represents six commitments that focus on education, research, public policy, sharing best practices, plastics recycling/recovery and plastic pellet containment.

Since December 2012, 58 associations representing 34 countries have signed the Declaration. The Declaration and list of signatories can be found at: www.marinelittersolutions.com/who-we-are/joint-declaration.aspx

EFFORTS FROM PAC NEXT

In December 2013, the Canadian Plastics Industry Association (CPIA), Society of the Plastics Industry (SPI) and the American Chemistry Council (ACC) welcomed PAC as the first supporter member of Operation Clean Sweep®. The board of directors of PAC and the leaders of the PAC NEXT initiative signed a Memorandum of Understanding to help promote this important initiative and to ensure members are engaged in resin pellet handling by joining the OCS program. Read the full press release here: http://www.pac.ca/index.php/ePromos/pac0501_cpia_press_release

In effort to promote education on this important issue, PAC NEXT first hosted a webinar on this topic on February 7, 2013 with speakers from CPIA, SPI and ACC. On February 26, 2014, PAC NEXT sponsored the *Finding Solutions for Marine Litter* webinar featuring speakers from CPIA, Ocean Conservancy, Natural Resources Defense Council (NRDC) and Method in partnership with Industry Intelligence. These webinars were targeted for professionals in the packaging, sustainability and consumer packaging goods industries to create awareness and learn what industry leaders are doing to address issues related to marine litter and debris. The transcript for the latest webinar can be requested here: <http://www.i2live.net/finding-solutions-for-marine-debris/>

LEARN MORE ABOUT OPERATION CLEAN SWEEP®

Do your part to protect environmental quality by preventing pellet litter while saving money through increased operational efficiency.

Operation Clean Sweep® is an international program designed to prevent pellet loss and the introduction of pellets to the marine environment. Register and join the 213 North American companies who have made the commitment to reduce pellet loss in their operations!

To learn more and to register online visit:

www.plastics.ca/ocs/OCSpledge (Canadian Program)

www.opcleansweep.org/Pledge (US program)

HELPFUL LINKS

The Declaration of Global Plastics Associations for Solutions on Marine Litter

<http://www.marinelittersolutions.com>

Progress Report:

<http://www.marinelittersolutions.com/cust/documentrequest.aspx?docid=55971>

National Oceanic and Atmospheric Administration (NOAA) Marine Debris Program

<http://marinedebris.noaa.gov/marinedebris101>

United States Environmental Protection Agency (U.S. EPA) on Marine Debris

<http://water.epa.gov/type/oceb/marinedebris/index.cfm>

UNEP & NOAA's International Marine Debris Conference

The Honolulu Commitment:

<http://5imdc.wordpress.com/about/commitment/>

The Honolulu Strategy:

<http://5imdc.wordpress.com/about/honolulustrategy/>

American Chemistry Council (ACC)

<http://www.americanchemistry.com/>

Canadian Plastics Industry Association (CPIA)

<http://www.plastics.ca/EnvironmentalSustainability/marinelitter/index.php>

Society of Plastics Industry (SPI)

<http://www.plasticsindustry.org/>

Ocean Conservancy 2011 Marine Debris Report

http://act.oceanconservancy.org/pdf/Marine_Debris_2011_Report_OC.pdf

INCPEN Marine Litter Factsheet

<http://www.incpen.org/displayarticle.asp?a=791&c=2>

Plastic Debris in the California Marine Ecosystem: A Summary of Current Research, Solution Strategies and Data Gaps. 2011. C. Stevenson, University of Southern California Sea Grant. Synthetic Report. California Ocean Science Trust, Oakland, CA.

http://calost.org/pdf/science-initiatives/marine%20debris/Plastic%20Report_10-4-11.pdf

Plastic Pollution Research

http://5gyres.org/see_global_research/

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Disclaimer

This document was supported by the PAC NEXT Leadership Council consisting of member volunteers with packaging, materials management and policy experience from across the public and private sectors. The conclusions and views expressed in this document do not necessarily reflect the views of every PAC NEXT Member Company or Affiliate.